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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,360	03/28/2001	Stephen Herman	US 010123	2079

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EXAMINER	
YENKE, BRIAN P	
ART UNIT	**PAPER NUMBER**
2614	7

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/819,360	Applicant(s) HERMAN ET AL.	
	Examiner BRIAN P. YENKE	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Response (24 February 2004)*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed 24 February 2004 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 15-21 rejected under 35 U.S.C. 102(b) as being anticipated by Khosravia et al., EP-844582.

In considering claims 1, 15 and 19,

a) the claimed an input buffer is met by frame grabber 120 of video processor 140 (Fig 1)

b) the claimed a segmentation controller is met by PC 130 of video processor 140 (Fig 1) which segments the video frame into to identify a region of pixels in the foreground of the image (Fig 2)

c) the claimed an image processor is met by PC 130 of video processor 140 (Fig 1) which computes the probability (403) of the model of one or more individual faces of an image being based on the ellipse(s) fitted in the identified region of the image

d) the claimed an enhancement controller is met by PC 130 of video processor 140 (Fig 1) which iteratively adjusts the model via means (404,405 Fig 4) to maximize the probability computation, thus ensuring the face is included in the identified region.

In considering claims 2, 16 and 20,

The claimed wherein said segmentation controller segments said first stored frame into said plurality of segments as a function of said probability function is met where the image is segmented according the function of the probability of the face being included in the shape of an elliptical shape.

In considering claims 3, 17 and 21,

The claimed wherein said enhancement controller increases an amount of enhancement of said parameter as a value of said probability function increases is met where PC 130 which selects the model of one or more individual faces by selecting the region with the maximum probability.

In considering claims 4 and 18,

The claimed wherein said enhancement controller decreases an amount of enhancement of said parameter as a value of said probability function decreases is met where PC 130 which selects the model of one or more individual faces by selecting the region with the maximum probability, thus not selecting models which are lower in probability.

In considering claim 5,

*The claimed further comprising a memory capable of storing...*is met by memory 135 and PC 130 which perform/store the segmentation of the received image into recognized face/eye patterns.

In considering claim 6,

*The claimed wherein said memory is further capable of storing an enhancement algorithm...*is met by memory 135 and PC 130 which selects/selects the model of one or more individual faces by the selecting the region(s) with the maximum probability of being face.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3a. Claims 7 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Khosravia et al., EP-844582 in view of Gossett et al., US 2003/0002732.

In considering claims 7 and 14,

Khosravi discloses that the probability of the selected region (i.e. face/eyes) are based upon the pixel intensities at the particular location (page 4, line 29-43).

However, Khosravi does not specifically disclose the pixel intensity being calculated from the YUV color values.

Khosravi does disclose that the received image may contain three color planes, commonly referred to as YUV or YIQ.

Although, the pixel color values of a color space, such as YUV color space are conventional in the art, nonetheless the examiner incorporates Gossett.

Gossett discloses that pixel value can be selected from any number of pixel color spaces, where one common space format is the known YUV color space, where the Y component refers to the luminance component and the U and V component refers to the chrominance components.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Khosravi which discloses calculating the probability of a selected region based upon the pixel intensity, with Gossett, by calculating the pixel value/intensity of the pixel based upon the color space used (i.e. YUV), in order to correctly calculate the probability of a pixel belonging to a particular region based upon the color space used and the value of the pixel within that color space.

3b. Claims 8-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Khosravi et al., EP-844582.

In considering claim 8,

b) the claimed an input buffer is met by frame grabber 120 of video processor 140 (Fig 1)

c) the claimed a segmentation controller is met by PC 130 of video processor 140 (Fig 1) which segments the video frame into to identify a region of pixels in the foreground of the image (Fig 2)

d) the claimed an image processor is met by PC 130 of video processor 140 (Fig 1) which computes the probability (403) of the model of one or more individual faces of an image being based on the ellipse(s) fitted in the identified region of the image

e) the claimed an enhancement controller is met by PC 130 of video processor 140 (Fig 1) which iteratively adjusts the model via means (404,405 Fig 4) to maximize the probability computation, thus ensuring the face is included in the identified region.

However, Khosravi does not specifically disclose demodulation circuitry.

Khosravi discloses a system which receives an analog video signal 115 and converts this signal into a digital image stored within image memory 135 which is processed by video processor 140. Khosravi also discloses that the frame grabber may convert the video signal into NTSC or PAL, and also the image may consists of three color planes commonly referred to as YUV or YIQ.

Thus, Khosravi discloses receiving the analog captured image from camera 110, which can then be converted into an appropriate format (i.e. NTSC or PAL) for processing.

It is also known that in order to received a modulated signal, the receiver would require a demodulator in order to obtain the baseband video signal.

Thus the examiner takes "OFFICIAL NOTICE" in regards to a system which includes a demodulator to receive an incoming RF TV signal which then generates a baseband video signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Khosravi which discloses receiving an image signal from

camera 110, which can be converted into an appropriate format (i.e. NTSC or PAL) by including a tuner/demodulator in the system, in order to receive RF TV signals which are broadcast, which would provide Khosravi the ability to receive analog signals captured from both camera 110 and the tuner, thus providing Khosravi the ability to capture images (video signals) from remote cameras.

In considering claim 9,

The claimed wherein said segmentation controller segments said first stored frame into said plurality of segments as a function of said probability function is met where the image is segmented according the function of the probability of the face being included in the shape of an elliptical shape.

In considering claim 10,

The claimed wherein said enhancement controller increases an amount of enhancement of said parameter as a value of said probability function increases is met where PC 130 which selects the model of one or more individual faces by selecting the region with the maximum probability.

In considering claim 11,

The claimed wherein said enhancement controller decreases an amount of enhancement of said parameter as a value of said probability function decreases is met where PC 130 which selects the model of one or more individual faces by selecting the region with the maximum probability, thus not selecting models which are lower in probability.

In considering claim 12,

*The claimed further comprising a memory capable of storing...*is met by memory 135 and PC 130 which perform/store the segmentation of the received image into recognized face/eye patterns.

In considering claim 13,

*The claimed wherein said memory is further capable of storing an enhancement algorithm...*is met by memory 135 and PC 130 which enhances/selects the model of one or more individual faces by the selecting the region(s) with the maximum probability of being face.

Applicant's Arguments

a) Applicant states that applied reference Khosravi does not ancitipate "enhancement controller", since Khosravi lacks any mention of "an enhacement controller capable of enhancing a parameter of said at least one pixel."

b) Applicant states that the "parameters" that the office action refers to in Khosravi are coordinates (x,y) of pixel locations that define the elliptical regions potentially including human faces. The applicant states that as understood in the art, pixel locations are fixed, thus the applicant states that Khosravia merely determines which pixel locations define the elliptical regions.

Examiner's Response

a) The examiner agrees, that Khosravi does not explicitly use the term "enhancement" in the disclosure, however Khosravi does disclose a PC 130 of video processor 140 (Fig 1) which computes the probability (403) of the model of one or more individual faces of an image being based on the ellipse(s) fitted in the identified region of the image, where the PC iteratively adjusts the model of one or more faces via means (404,405 Fig 4) to maximize the probability computation of the face(s) being in the region, thus ensuring the face is included in the identified region. Thus, the maximizing of the probability computation is to ensure the face is fitted in the identified region. The parameters (horizontal coordinates of the vertical faces that separate individual faces in each foreground region) are computed to maximize $(P(O)(x,y)|\lambda I)$ the pixels in the foreground/background (page 4, line 56 to page 5, line 52), which "best" segment the foreground regions (page 4, line 44-48). Therefore, the examiner maintains since Khosravia controls the parameters of the pixels based on the probability computation to ensure "best" segmentation of the pixels in order to detect the face(s) (image), the limitation of enhancement is anticipated by "best" segmentation, where the difference in wordage (best versus enhancement) is inconsequential, since making something better (i.e. best) and enhancing something are the same thing.

b) The examiner agrees that parameters are coordinates of pixel locations. However, these parameters are then used to compute/maximize the pixels in the foreground/background regions. The examiner is unclear on the applicant's argument regarding the applicant's statement that pixel locations are fixed, and that Khosravi merely determines which pixel locations define the elliptical regions. The examiner

request the applicant to expound on pixel locations as disclosed by the invention and in relation to the claims, and also the differences if any between fixed pixel locations and the applied references.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure—refer to newly cited references on attached form PTO-892.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-HELP.

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publication-ready form. EFS includes software to help customers prepare submissions in extensible Markup Language (XML) format and to assemble the various parts of the application as an electronic submission package. EFS also allows the submission of Computer Readable Format (CRF) sequence listings for pending biotechnology patent applications, which were filed in paper form.

BRIAN P. YENKE
Primary Examiner
Art Unit 2614

B.P.Y
07 May 2004